

WHAT IS CLAIMED IS:

1. A device for manipulating and positioning an organ, said device comprising:
 - (a) at least one inflatable annular member having a central opening and an organ contacting surface;
 - (b) a vacuum distribution element operatively associated with said inflatable annular member; and
 - (c) a positioning element comprising a lumen coupled to a vacuum source and said inflatable annular member, wherein said positioning element is configured to position said inflatable annular member and provide a vacuum to the organ.
2. The device according to claim 1, wherein the organ is a beating heart.
3. The device according to claim 1, wherein one or more seams of said inflatable annular member is positioned on the interior of said inflatable annular member.
4. The device according to claim 1, wherein the organ contacting surface comprises an atraumatic, compliant material.
5. The device according to claim 4, wherein said atraumatic, compliant material is selected from the group consisting of foam, gel, fabric, gauze, and material of the type conventionally used in neuro sponges.
6. The device according to claim 4, wherein said atraumatic, compliant material is configured to conform to, and diffuse suction exerted on, the organ.
7. The device according to claim 1, wherein said vacuum distribution element is configured to diffuse suction exerted on the organ.

8. The device according to claim 1, wherein said vacuum distribution element is selected from the group consisting of foam, gel, fabric, gauze, and material of the type conventionally used in neuro sponges.

9. The device according to claim 1, wherein said inflatable annular member is coupled to said positioning element with an attachment means.

10. The device according to claim 9, wherein said attachment means comprises a flexible plastic.

11. The device according to claim 9, wherein said attachment means is comprised of a series of segments.

12. The device according to claim 9, wherein said attachment means comprises a flexible linkage mechanism.

13. The device according to claim 9, wherein said attachment means comprises a ball and socket mechanism.

14. The device according to claim 9, wherein said attachment means is configured to allow sufficient vertical and lateral movement of said inflatable annular member.

15. The device according to claim 1, wherein said positioning element further comprises a spring to enable axial movement of said inflatable annular member.

16. The device according to claim 1, wherein said device is capable of being retained inside a sheath.

17. The device according to claim 16, wherein said retained device is deflated.

18. The device according to claim 1, wherein said device is inflated with a substance selected from the group consisting of gas, saline, water, contrast solution, and combinations thereof.

19. The device according to claim 1, wherein said device is capable of manipulating and positioning the organ absent clinically relevant hemodynamic instability.

20. A system for manipulating and positioning an organ, said system comprising:
(a) a device for manipulating and positioning an organ, said device comprising:
(i) at least one inflatable annular member having a central opening and an organ contacting surface,
(ii) a vacuum distribution element operatively associated with said inflatable annular member, and
(iii) a positioning element comprising a lumen coupled to a vacuum source and said inflatable annular member, wherein said positioning element is configured to position said inflatable annular member and provide a vacuum source to the organ, and
(b) a vacuum source operatively coupled to said positioning element lumen; and
(c) a sheath for inserting said device into a body cavity.

21. The system according to claim 20, wherein the organ is a beating heart.

22. The system according to claim 20, wherein said sheath comprises a plurality of leaves to facilitate insertion of said sheath into a body cavity and deployment of said device therefrom.

23. The system according to claim 20, further comprising a securing means for securing said device to a stationary object.

24. The system according to claim 20, further comprising at least one regulator for regulating the flow of vacuum to an organ.

25. A method of manipulating and positioning an organ, said method comprising:

(a) introducing a device into a body cavity, wherein said device comprises:

(i) at least one inflatable annular member having a central opening and an organ contacting surface,

(ii) a vacuum distribution element operatively associated with said inflatable annular member, and

(iii) a positioning element comprising a lumen coupled to a vacuum source and said inflatable annular member, wherein said positioning element is configured to position said inflatable annular member and provide a vacuum source to the organ, and

(b) inflating said device;

(c) contacting the organ with said device; and

(d) applying a vacuum to the organ to create an intimate engagement between the organ and said device; whereby the organ is manipulated and positioned with said device.

26. The method according to claim 25, wherein said device is introduced into said body cavity through an opening created by the group consisting of sternotomy, mini-sternotomy, thoracotomy, mini-thoracotomy and a port.

27. The method according to claim 25, wherein said device is introduced into said body cavity through a sheath.

28. The method according to claim 25, wherein said device is inflated with a substance selected from the group consisting of gas, saline, water, contrast solution, and combinations thereof.

29. The method according to claim 25, wherein said contacted organ is a beating heart.

30. The method according to claim 25, wherein said vacuum exerted on the organ is diffused.

31. The method according to claim 25, wherein about 100 mmHg to about 400 mmHg of vacuum is applied.

32. The method according to claim 25, wherein said device conforms to the organ to create said intimate engagement.

33. The method according to claim 25, further comprising securing said device to a stationary object.

34. The method according to claim 25, further comprising performing a coronary artery bypass procedure on the organ.

35. The method according to claim 25, wherein said device is manipulated and positioned absent clinically relevant hemodynamic instability.

36. A kit for manipulating and positioning an organ, said kit comprising:
(a) at least one device according to claim 1; and
(b) instructions for using said device to manipulate and position the organ.

37. The kit according to claim 36, comprising a plurality of devices.

38. The kit according to claim 36, further comprising at least one sheath for delivering said device into a body cavity.

39. The kit according to claim 36, further comprising at least one securing means for securing said device to a stationary object.

40. The kit according to claim 36, further comprising at least one regulator for regulating a flow of vacuum.